

Supporting the Mission by Pursuing Compliance with Federal Energy/Water Requirements

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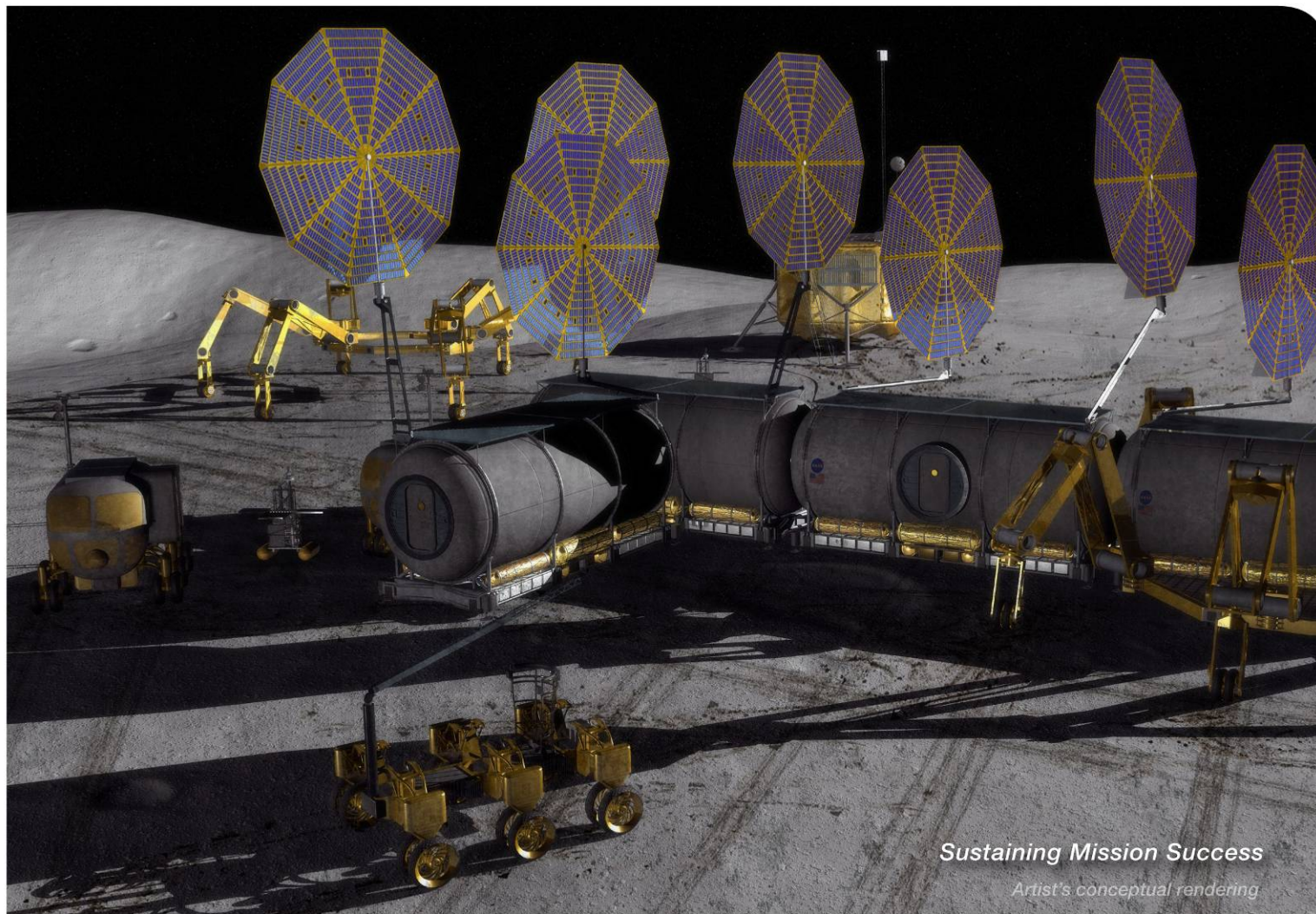
9/24/08

Introduction

- Summarize benefits to mission
- Show examples of Center activities

Achieving this...

NASA
environmental
and energy
conference
08



Sustaining Mission Success

Artist's conceptual rendering

...requires this.

NASA
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and
energy
conference
08



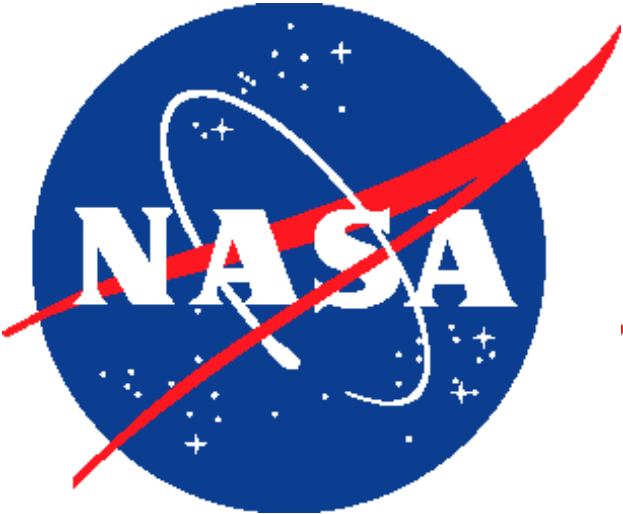
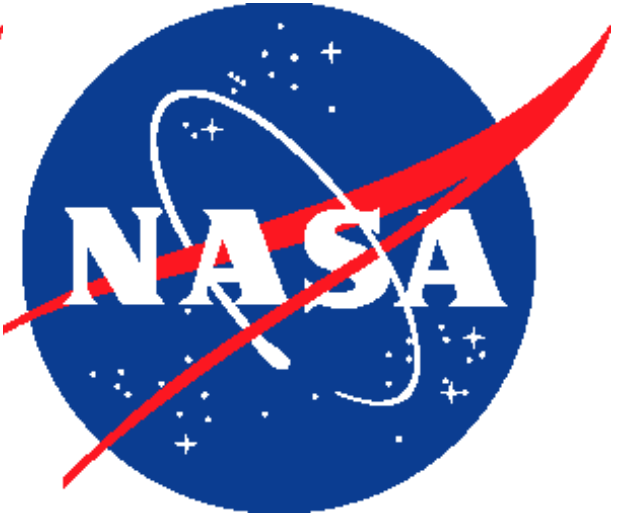
Infrastructure must sustain
mission success from now...

NASA
08 environmental
and energy
conference



...into the future.

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environmental
and
energy
conference
08

1  
YEARS

Pursuing Federal requirements...



- Summarized in General Session by Office of Federal Environmental Executive and Department of Energy
- More importantly, hp asked if mission understands our value proposition

...benefits the mission.

- Provide high-performance and sustainable facilities for operations
- Mitigate utility unit cost increases
- Reduce demand on congested grid
- Reduce dependence on constrained natural resources
- Reduce generation of greenhouse gases

Examples of Center Activities

ARC native plant gardens



Examples of Center Activities

ARC solar PV LED parking lot lights



Examples of Center Activities

ARC solar LED parking lot lights

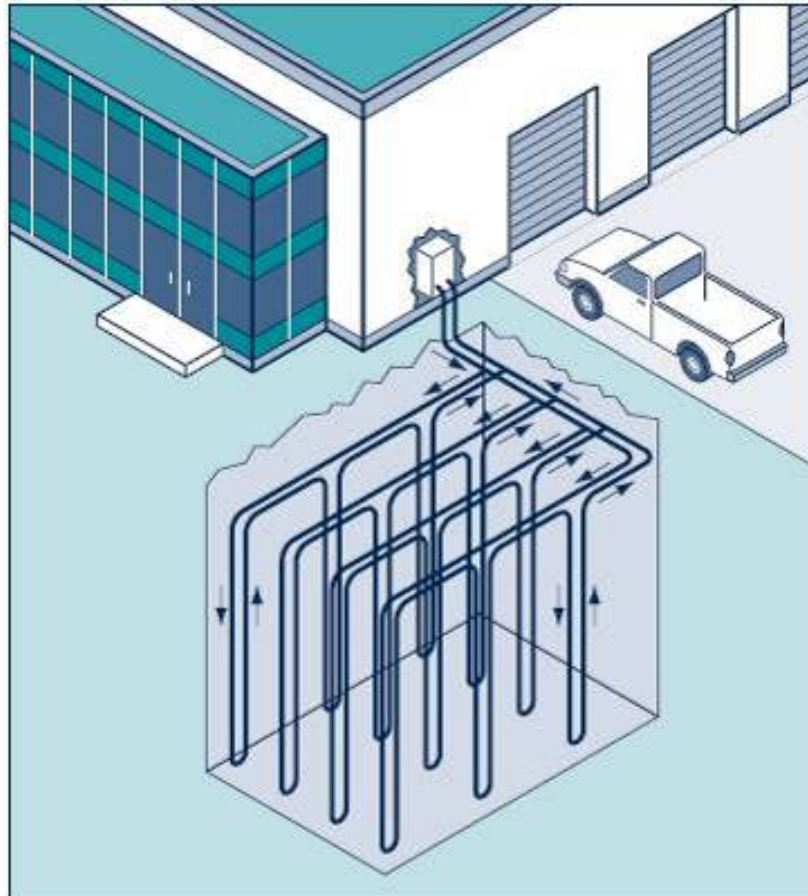


Examples of Center Activities

- DFRC pursuing alternatively financed efficiency improvement project
 - HVAC, maybe ground source heat pumps
 - Motors with variable frequency drives
 - Lighting
 - Water conservation
 - Energy management control system modifications

Examples of Center Activities

GRC ground source heat pumps



Examples of Center Activities

GRC solar concentrating PV test



Examples of Center Activities

- GSFC pursuing alternatively financed efficiency improvement project
 - Retrocommissioning
 - WFF steam system plant decentralization
- GSFC preparing for ground source heat pump project

Examples of Center Activities

JPL solar PV



Examples of Center Activities

JPL-GDSCC solar PV



Examples of Center Activities

JPL pursuing LEED rating



Examples of Center Activities

JSC multi-platform renewable energy



Examples of Center Activities

JSC pursuing LEED rating



Examples of Center Activities

JSC-WSTF pursuing solar thermal electricity (Nevada Solar One shown)



Examples of Center Activities

KSC decentralized high-temp hot water



Examples of Center Activities

KSC solar PV agreement



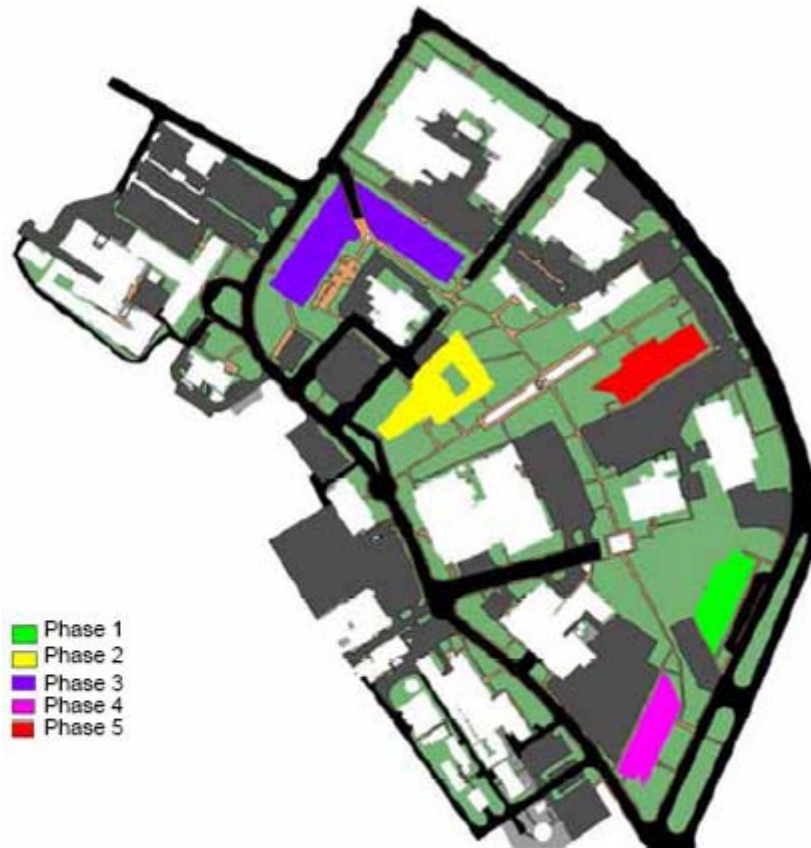
Examples of Center Activities

KSC solar PV agreement



Examples of Center Activities

LaRC pursuing LEED rating



Examples of Center Activities

- LaRC pursuing alternatively financed efficiency improvement project
 - Lighting
 - Water conservation
 - HVAC
 - Retrocommissioning

Examples of Center Activities

- MSFC Child Development Center earned LEED Certified
- MSFC pursuing additional LEED-NC and LEED-EB O&M

Examples of Center Activities

- SSC methodically reviewing energy management control system and improving efficiency
- SSC pursuing alternatively financed efficiency improvement project
 - Lighting
 - Considering centralizing chilled water

Conclusion

- Centers actively improving energy/water management
- Improving energy/water management helps sustain mission success